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PRELIMINARY PROPOSAL FOR RAPID TRANSIT EXPANSION BOROUGH OF QUEENS

FEBRUARY 1963

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THE NEED FOR EXPANSION

The need for more adequate and direct rapid transit service for the steadily growing Borough of Queens is acute. The transit problem in Queens is the result of the extraordinary increase in population, nearly 20%, during the years following World War II, particularly in the outlying areas of the Borough.

Queens is the largest borough in area, and today is second in population. Measured on any unit basis it has the fewest rapid transit facilities and the lowest proportion of rapid transit riding of the three outlying boroughs of the City served by rapid transit lines.

Comparison of pertinent statistics for Queens,
Brooklyn and The Bronx shows:

	<u>Queens</u>	<u>Brooklyn</u>	<u>The Bronx</u>
Area (Sq. Miles)	118.63	79.79	41.41
Rapid Transit Route Miles ...	42.74	87.80	38.27
Number of Stations	82	181	84
Population (1960)	1,810,000	2,627,000	1,425,000
Estimated Population (1985) .	1,925,000	2,450,000	1,350,000
Population per Station (1960)	22,068	16,962	14,516
Revenue Passengers on TA Rapid Transit Lines (1960)	168,125,000	301,218,000	151,226,000

The proportionally lower riding in Queens is primarily due to congestion on existing lines, to the relative inaccessibility of existing rapid transit lines for a large segment of Queens residents, and to the inconvenience of longer travel time to the central business district for the average Queens rider. The additional services proposed immediately for that Borough and the proposed future additional lines in areas not now directly served by rapid transit lines, together with the anticipated decrease in congestion on existing lines will stimulate increased riding.

More people are using the two main rapid transit arteries; i. e., IRT Flushing Line and IND Queens Line, to reach the central business district in Manhattan, than ever expected. This situation will worsen in the years immediately ahead. The severe congestion on the two main rapid transit lines to Manhattan together with the long bus trip from outlying sections of the borough to these lines impels more and more Queens residents who desire to go to the central business district to use their automobiles on the already heavily congested highways, parkways and City streets. The predicted population growth will aggravate Queens' rapid transit inadequacies. It is possible that the rapid transit inadequacies will prevent the development of the borough to its full potential.

The Authority is, therefore, convinced that rapid transit in Queens must be improved and expanded. The daily journey to and from work must be made as rapid and comfortable as possible and rapid transit access provided to additional areas of the borough. This is one of the necessary expenses of our way of living and doing business.

Today, all rapid transit river tunnels from Manhattan to Queens are operating at near maximum track capacity and cannot accommodate new service from other areas.

The Authority is convinced that to relieve congestion and extend service to new areas of Queens it is essential to provide new river tunnels. It is, therefore, proposing to construct immediately a new trunk line tunnel between Manhattan and Queens integrated to the maximum extent possible with present rapid transit facilities in both boroughs. Branch lines to the new trunk line and on existing lines in Queens will reach into areas now lacking direct transit service. These branches will serve neighborhoods where extensive high-rise residential or commercial development can be anticipated or might be encouraged.

To furnish direct rapid transit service from every section of Queens to Manhattan would be an unwarranted and uneconomic expenditure of Capital Funds. Further, it is futile to try to operate numerous train services to all sections of the borough over many branch lines converging into a single new trunk line. This dilutes services on the branches to the level where each is inadequate. Construction of more than one new trunk line to Manhattan would be an unnecessary extravagance.

The Authority is, therefore, urgently recommending that construction be started immediately on the trunk line tunnel described below and shown as a solid red line on the attached map.

This trunk connection is the vital first step in any program for the transit improvements we are proposing for Queens.

FOR FURTHER CONSIDERATION

RECOMMENDATIONS

Against this background the lines listed below, and shown on the attached map, have been developed to meet present and future rapid transit requirements for the Borough of Queens. The Transit Authority is recommending:

FOR IMMEDIATE CONSTRUCTION

Trunk Line Tunnel.

This trunk line tunnel will connect the IND Queens Boulevard Line with existing lines in Manhattan in the vicinity of 59th Street. This provides capacity for additional train service between Queens and Manhattan. Because of the urgent need for this route, the Transit Authority recommends that the Capital Budget be opened and funds provided to start work on the river tunnel and one section in Central Park.

FOR FUTURE CONSTRUCTION

Route A - Northern Queens.

This line to serve northern and northeastern Queens should be constructed as soon as capital funds are available after the trunk line tunnel is started. It will permit full use of the tunnel capacity, will serve a section of Queens now lacking adequate transit, and will relieve congestion on existing lines.

Routes B & C - Southern and Central Queens.

These routes will serve areas where additional rapid transit service is needed and when completed will form part of an integrated system in Queens. Their completion can, however, be deferred until after completion of the routes described above which provide the needed capacity for additional services to Manhattan.

Only two stations are definitely located on the trunk line at this time. One will be near Lexington Avenue where there will be a convenient passenger transfer to the 77th Street Station of the East Side IRT Line. The other station will be in Central Park in the vicinity of 79th Street. This will provide passenger transfer facilities to the proposed Central Park subway and easy access to recreation areas within the Park.

DESCRIPTION OF ROUTES

Trunk Line Tunnel

This route will start from a connection with the IND Queens Boulevard Line in Long Island City, in the vicinity of Steinway Street and Broadway. The connection can be readily made at this point. It will then proceed westerly under 34th Avenue in Queens to a new tunnel under the East River and Welfare Island. In Manhattan, it will continue under 76th Street to Central Park where it will turn south and join the route of the heretofore proposed subway under Central Park. Connections will then be made to the two tracks of the IND Sixth Avenue Line which are now being extended to the vicinity of 58th Street, and to the stub-ended tracks of the BMT Line at 59th Street and 7th Avenue.

Only two stations are definitely located on the trunk line at this time. One will be near Lexington Avenue where there will be a convenient passenger transfer to the 77th Street Station of the East Side IRT Line. The other station will be in Central Park in the vicinity of 70th Street. This will provide passenger transfer facilities to the proposed Central Park subway and easy access to recreation areas within the Park.

To minimize disturbance to Central Park and reduce total costs it is proposed to construct simultaneously the facilities south of 76th Street needed for both the Queens and Bronx connections to the subway lines at 59th Street. While this will add to the immediate construction costs it will reduce later costs of the Central Park subway by a corresponding amount.

In Queens, as part of the construction of the trunk line tunnel, switchback facilities will be built to permit the present local GG service from Brooklyn to be returned at Steinway Street.

The trunk line tunnel will provide capacity for 30 trains per hour in each direction between Queens and the central business district in Manhattan. Initially, however, until Route A is built, it will be used for an additional 15 trains per hour to the IND Sixth Avenue Line from the IND Queens Boulevard Line. Although full relief for congestion will come only after completion of the branch lines to the outlying areas of Queens, operation of 15 additional trains per hour to Manhattan via the new trunk line tunnel will provide initial relief by diverting passengers from the overcrowded E and F Expresses.

The length of this route from its connection with the BMT Broadway and the IND Sixth Avenue Lines in the

vicinity of 59th Street, Manhattan, and the IND Queens Line in the vicinity of Steinway Street in Queens, is 4.5 miles.

The estimated total cost of construction and equipment of this trunk line tunnel is \$138.6 million. Of this amount, \$37.4 million is the cost of the facilities south of 76th Street that will be jointly used by both the Queens and Bronx services.

The total amount is not needed all at once. A schedule for the construction and equipment of the trunk line tunnel for initial operation at the earliest possible date, 1970, will require appropriation of capital funds as follows:

Capital Budget Appropriations
Required for Trunk Line Tunnel

<u>Capital Budget Year</u>	<u>Amount Required (in Millions)</u>	<u>Purpose*</u>
1963 - 64	\$ 40.2	Construction-East River Tunnels, and 59th St. to 67th St., Manhattan
1964 - 65	38.1	Construction-67th St. to East River Tunnel, Manhattan
1965 - 66	23.0	Construction-Steinway Street to East River Tunnel, Queens
1966 - 67	2.2	Engineering
1967 - 68	27.9	Equipment-From 59th St., Manhattan through East River Tunnel; 90 cars; and storage facilities
1968 - 69	6.9	Equipment-Steinway Street to East River Tunnel, Queens
1969 - 70	.3	Engineering
	\$ <u>138.6</u>	

* Engineering and supervision costs included, where not shown separately.

Proposed Branch Line Routes

After evaluation of many plans, it is the opinion of the Transit Authority that the new northern line and the branch lines described below, and shown in dotted lines on the attached map, will best serve Queens. The Transit Authority is certain that the trunk line tunnel must be constructed as soon as possible, and in the location described. The other lines, while recommended as shown, are proposed and offered for study by all interested groups, and discussion with the Authority. After this study and discussion the Authority will make its final recommendations.

The precise location of some portions of these lines and of the stations are still to be determined. However, the major corridors through which the new lines must run are already substantially determined by topography, the location of existing transit lines, and the historically fixed residential and commercial pattern of the Borough.

Because of the long distances from the eastern and southern areas of Queens to the central business district in Manhattan, operation of high speed service is essential. Consideration, therefore, was given to the possibility of either making the new trunk line and its branches 3-track lines with express service in the direction

of the prevailing peak-hour traffic, or 2-track lines with stations about a mile apart. After study and evaluation, it was concluded that good rapid transit service at minimum capital and operating cost, will be obtained by building 2-track lines with stations spaced about a mile apart.

With such lines, and the population distribution in Queens, the stations will be arranged to provide convenient entry for passengers from feeder bus lines and private automobiles. In addition, provision must be made for ample parking areas.

ROUTE A: Northern Queens.

This will be the major new line serving northern and northeastern Queens. It will be a 2-track subway from its junction with the trunk line tunnel along 34th Avenue, Northern Boulevard, Main Street, Kissena Boulevard, Parsons Boulevard, and under one of the service roads of the Horace Harding Expressway to Springfield Boulevard.

The length of this line from its connection with the trunk line tunnel to Horace Harding Expressway and Springfield Boulevard is 10.3 miles.

This line will utilize the new trunk line tunnel to provide a direct, fast service of 15 trains per

hour from northeastern Queens to Manhattan. The eastern portion of this line along Horace Harding Expressway, is about 2 miles north of Hillside Avenue. It will, therefore, attract many riders from the IND Queens Boulevard Line and relieve its present congestion. Similarly, relief will be given to the IRT Flushing Line and its Main Street Station to which Route A is contiguous.

The estimated cost of Route A is \$219.4 million.

A reasonable construction schedule to permit initial operation to Main Street, Flushing, to start about 6 years after the start of construction; and complete operation about 2 years later will require the appropriation of Capital funds approximately as follows:

<u>Year</u>	<u>Amount</u> <u>(in Millions)</u>
1st year	\$ 35.0
2nd "	41.8
3rd "	30.6
4th "	55.6
5th "	36.4
6th "	8.7
7th "	11.0
8th "	<u>.3</u>
	<u>\$219.4</u>

Extension of the IRT Flushing Line by acquisition of the North Shore Division of the Long Island Rail Road has been previously proposed and considered. Construction of Route A does not preclude such a plan for the future.

ROUTE B: Southern Route

This will be a new branch of the IND Fulton Street Line in Brooklyn. It is a 2-track subway along Pitkin Avenue, Linden Boulevard, and Merrick Boulevard, to Springfield Boulevard. The length of the proposed branch line from the vicinity of Pitkin and Euclid Avenues in Brooklyn, to Merrick and Springfield Boulevards in Queens is 6.6 miles. There is provision for an outlet for this route in the existing structure of the IND Fulton Street Line east of the Euclid Avenue Station.

Route B will extend into an area where considerable residential and commercial growth is already taking place. The easterly portion situated south of the present Jamiaca area will give direct rapid transit service to a section where passengers now travel long distances by bus to the subway.

The estimated cost of Route B is \$116.0 million.

ROUTE B ALTERNATE: Southern Route

Under this plan, the IND Division Fulton Street Line (Liberty Ave. "E1") would be extended from its present terminus at Lefferts Boulevard, as a 2-track elevated, ramp and subway line eastward via Liberty Avenue, Linden Boulevard, and Merrick Boulevard to Springfield Boulevard. The length of this alternate route is 4.5 miles, and its cost is estimated at \$80.8 million.

Route B Alternate is shown because it saves in initial cost, due chiefly to a lesser amount of subway construction. However, this cost advantage is offset by the resulting undesirable structure east of Lefferts Boulevard. The ramp and open cut structures to get from elevated line to subway require acquisition of private property to widen Liberty Avenue, and block several through streets. Additional property must be acquired to make the turn from Liberty Avenue to Linden Boulevard. Moreover, compared with Route B, operating speed will be cut by reverse curves in the alignment, heavy grades on two ramps, and closely spaced stations on the existing elevated line.

ROUTE C: Central Queens

This is the connection of the Rockaway Line to the IND Queens Boulevard Line. The Rockaway Line would be extended northerly from Liberty Avenue along the right-of-way now owned by the City to Rego Park (White Pot Junction), and

then via a short new section to a connection with the local tracks of the IND Queens Boulevard Line in the vicinity of 63rd Drive. Provision exists in the IND structure for such a connection.

The total length of new construction for this route is 3.8 miles.

Rockaway service will operate into Manhattan via the IND Queens Boulevard local tracks, and the new trunk line tunnel. Passengers desiring to travel to Brooklyn on the IND Fulton Street Line will be able to transfer at a new station to be constructed at Linden Boulevard where proposed Route B crosses the Rockaway Line.

The estimated cost of this route is \$39.9 million.

BENEFITS

Faster Service

The most efficient mass transportation for a large urban area, such as the Borough of Queens, is by a system of rapid transit lines to the central business district coordinated with bus feeders to the rapid transit stations. The proposed lines are laid out in a pattern that will permit improved bus-feeder service and will furnish passengers with a quicker and more comfortable trip to the central business district than is now available.

Relief of Congestion on Existing Lines

In developing a plan for additional rapid transit lines in Queens, prompt relief of passenger congestion on the IND-Queens Line and the IRT-Flushing Line was sought. Some of the factors studied in determining the number of passengers who would be diverted from the above lines were: population within easy walking distance (1/2 mile) to stations; availability of feeder-bus service; and the improved and quicker service on the new lines.

The results of this study show expected relief of about 19% on the IND-Queens Boulevard Line and about 22% on the IRT-Flushing Line upon completion of all the lines proposed. Translated into every-day language, this means that the number of passengers per car on the above lines

during peak hours would be reduced by these percentages.

Additional congestion relief is anticipated after BMT-Division platforms in Manhattan are lengthened, as proposed in the Authority's Capital Budget request, to permit 10-car local operation on the IND-Queens Boulevard Line. Similar relief will be provided on the IRT-Flushing Line by 11-car operation.

Development of the Borough

It is the Transit Authority's best judgment that the lines as planned will serve sections of Queens where additional multi-story residential and commercial development can be expected. New riding will thus be generated, and increased real estate values will yield greater tax revenues to the City.

Other Benefits

Completion of the expansion program will substantially increase total transit riding in Queens. It will furnish transit services of such sufficiency that many potential rapid transit passengers now using motor vehicles to reach the central business district will find it quicker, more convenient and more comfortable to leave their cars at home and use rapid transit for their daily morning and evening rides to and from work. This should reduce or eliminate any future need for a new automobile tunnel to Manhattan

with a passenger capacity less than 10% of a subway tunnel, and for more highways to the central business district, and permit the monies otherwise needed for highway expansion, whether they be city, state or federal funds, to be used elsewhere for projects of greater usefulness.

Furthermore, the pattern of lines proposed will provide easier rapid transit access from one part of the Borough to another, and a greater variety of services to Manhattan.

ECONOMIC ASPECTS

Since the lines described in this report, except for the trunk line tunnel, are preliminary proposals subject to change after study and discussion, detailed estimates of operating revenues and expenses are not shown. They will be made available after decisions are reached on definite plans.

For the trunk line tunnel, the \$138.6 million cost of construction and equipment will increase the City's debt service by about \$6.7 million per year when it is completed. This represents an increase of about 2.5¢ in the tax rate on current assessed valuations, or 0.6%. Presently planned new service will add approximately \$1 million per year to operating costs.

These figures are computed on today's costs. To attempt to predict what they will be, particularly the operating cost, 7 years hence when this line could start operation if construction starts at once, is an academic exercise.

These figures are, however, indicative of the magnitude of the amounts under consideration. Compared to the benefits to be derived in relief of congestion, and the potential for transit expansion in Queens the tunnel trunk line makes possible, it is a small price to pay.

Similar considerations will apply to this entire proposal whose costs will undoubtedly be offset, wholly or in part, by increases in assessed values in the areas benefited, and the increased transit riding that will be generated by the improved facilities.

CONCLUSION

The key to the solution of the City's mass transportation problem lies in the maintenance, improvement and expansion of its rail transportation system. For the past nine years the Transit Authority with the aid of capital funds has improved the physical properties and the operations of the transit system by renewing track and road beds; installing fluorescent lighting; purchasing new cars and buses; extending platforms for the operation of longer trains; modernizing signalling; constructing the DeKalb-Chrystie-6th Avenue complex for better service between Brooklyn and Manhattan; installing new escalators, elevators, and other stations improvements; and by many other modernization and rehabilitation projects.

Further improvement in services for the riding public lies in expansion of rapid transit facilities. This has been the experience of major urban areas throughout the world, and the program proposed is modest in comparison with those advanced in other cities.

In the United States, the voters of San Francisco have approved the expenditure of \$994. million for an initial rapid transit system in the metropolitan San Francisco area. A rail rapid transit system costing \$793. million for Washington, D. C., integrated with a bus system, has been

recommended to the President for approval by Congress. This system is intended to serve the Federal District. Los Angeles, presently choked by freeways and expressways in its downtown district, is planning to construct a rail rapid transit system. Chicago is contemplating expansion of its rapid transit system. Philadelphia and Boston are adding to their subway and elevated systems.

There is growth in rail rapid transit in many cities in other countries. In Canada, Montreal is presently constructing a rail rapid transit system, and Toronto is expanding its subway facilities. In Europe, most of the national capitals already have subway systems and expansion of some is under consideration. New rapid transit facilities are being constructed or planned in ten West German cities. Stockholm has a modern transit system and is in the process of expanding it. In Japan, Tokyo is planning improvements to its subway system.

Based on past experience and history in the development of other areas of our City, construction and operation of the transit system and its expansion have always been followed by an increase in population, land development and business activity in the areas traversed.

As stated by the National Capital Transportation Agency, November 1, 1962, "The public has become increasingly aware that the transportation needs of large urban areas

cannot be met by highways alone. Rapid Transit service is the most economical means of carrying people to and from downtown in a large area. . . . This is so because highways have a relatively limited capacity as compared with the capacity of rapid transit facilities; "

It is our opinion that the same progress will follow upon completion of the proposed transit improvements for the Borough of Queens. This rapid transit expansion program is proposed to afford a balanced rail and bus transit system for the Borough which will meet the needs and aspirations of its people for at least the next 20 years.

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